ATTACHMENT 4. PROJECT DESCRIPTION

Provide a complete, detailed description of the proposed project, including the goals of the project, needed facilities and their location, and the area covered. Maps are generally not required (also see Attachment 5), but can be very helpful in explaining the proposed project. Describe how the project supports the goals and objectives of the GWMP. Applicant must clearly explain the relevance of project to the GWMP.

Project Description

The West Basin Municipal Water District's (West Basin) "West Coast Basin Barrier Water Quality Monitoring Wells Project (Project)" proposes to install two new water quality monitoring wells along the West Coast Basin Barrier (Barrier). Currently, West Basin has only one water quality monitoring well for the entire Barrier system. The County of Los Angeles, Department of Public Works (LACDPW) owns and maintains both the Barrier monitoring and injection wells. West Basin contracts the sampling of these monitoring wells for compliance reporting to California Water Service Company. Furthermore, the Water Replenishment District of South California (WRD) has additional monitoring wells at nearly 50 locations throughout the West Coast and Central Basins for the purpose of basin water quality management. West Basin will utilize the two new monitoring wells for their own water quality monitoring and tracking of recycled water chemistry in the three groundwater aquifers. This Project will be in coordination with the LACDPW and WRD, both of which are supportive of this Project.

The existing monitoring wells owned by WRD and LACDPW are close enough to the Barrier for early detection of recycled water. Since these wells are not owned by West Basin, the capability of conducting research specifically focused on early detection to better understand recycled water interaction with the groundwater supplies is vital. West Basin's intention of installing two monitoring wells in addition to its one existing well is to conduct tracer studies on recycled water flow through the groundwater supplies to enhance this resource. The purpose is for West Basin to conduct its own progressive research and be in control of the timing of when the samples are collected. The data will aid in understanding the interaction of recycled water with the groundwater and allow for quick response to any potential water quality issues that have adverse effects to the freshwater supplies.

In 2006, West Basin decided to install its own monitoring well (called "WB-1") in the city of Redondo Beach for the purposes of monitoring the interaction of recycled water in the groundwater basin. This new Project will expand West Basin's monitoring program by installing two additional monitoring wells both in the north and south legs of the Barrier system.

Project Background

The south bay region of Los Angeles County served by West Basin is home to nearly one million people and thousands of businesses. In the late 1950s, the region was afflicted with high saline groundwater due to over-extraction of the natural groundwater supply. Imported water was brought in and the region continued to grow.

A decade later, the Barrier was installed by the LACDPW to prevent seawater from contaminating the groundwater through the injection of freshwater that formed a protective pressure ridge. Over 150 injection wells were placed along 13 miles of coast to prevent further contamination of groundwater supplies by ocean water. This resulted in a need for an additional 17 million gallons a day of water to be injected into the Barrier to act as a buffer against seawater intrusion. Currently, West Basin is expanding its injection of recycled water into the Barrier to 100%. This expansion will be completed in early 2013 and will deliver 17 million gallons a day of reverse osmosis recycled water supplies to the Barrier. This will save 5.5 billion gallons of potable imported water a year.

While the LACDPW maintains the barriers and determines the quantity needed for injection, the WRD is responsible for acquiring the supply necessary to meet the protection and replenishment demands. As the wholesaler in the region, West Basin sells treated imported and recycled water to WRD to inject into the Barrier. As Table 4.1 shows, WRD's demands over the last five years average about 19,000 acre-feet per year (AFY) annually from West Basin for deliveries to both the West Coast and Dominguez Gap barriers in the West Coast Basin. Water demands at the Barrier usually do not shift dramatically due to the limited groundwater production each customer is allowed annually, because of the adjudication of the basin.

Table 4.1: Historical Replenishment Demand (AFY)

Retailer	2001-2005	2006-2010
Water Replenishment District	22,295	19,011

Source: Based upon actual water use sales.

Groundwater is a significant portion of the region's local supplies and makes up approximately 23% in an average year. Also, groundwater basin water quality is a significant issue in the region and, as a result, a primary objective of the IRWMP is to "protect and improve" groundwater quality. The 2006-adopted Greater Los Angeles County Integrated Regional Water Management Plan (IRWMP) projects an 800,000 AFY (approximately 25%) water supply shortfall by 2025 and identifies groundwater supplies as key to meeting existing and future demands. The West Coast Groundwater Basin provides nearly a quarter of the water supply to the overlying residents and businesses in 16 cities in southwest Los Angeles County. On average, 37,000 AFY is pumped from the basin for municipal and industrial use, which represents approximately 10% of groundwater supplies for the Greater Los Angeles County Region, which has a population of over 10,000,000. The West Coast Groundwater Basin is reliant upon replenishment supplies to not only meet demand but also to maintain water quality levels.

West Basin Municipal Water District

In an arid environment relying on shrinking water supplies from outside the region, West Basin has worked to help secure sustainable water supplies. With pressure on the Bay-Delta environment in Northern California and water quality issues from Colorado River supplies, West Basin's Board of Directors took the bold step to build a state-of-the-art water recycling facility to produce highly purified local water for injection into the Barrier nearly 20 years ago. This groundwater protection system is successfully growing in partnership with numerous stakeholders and intends to supply 100% sustainable recycled water to the Barrier by early 2013. The proposed two new monitoring wells would assure that the highest quality of water is being served to protect the public's water supply and environment.

West Basin is a local public agency that provides wholesale water to an area that overlies an adjudicated groundwater basin and collaborates with two other local public agencies (LACDWP and WRD), with regard to management of the basin under the adjudication and WRD's GWMP. The proposed project supports the goals and objectives of the GWMP and includes direct collaboration between these three local public agencies in the planning, implementation, and ongoing maintenance of the Project.

Project Goals and Objectives

The primary goal of the Project is to secure sustainable water resources and protect drinking water for the Los Angeles south bay region of 1 million residents by studying, tracking and monitoring the underground behavior of highly advanced treated recycled water.

Support of GWMP Goals and Objectives

The Project supports the goals and objectives described in the 2003 Strategic Plan. Specifically, this project relates to **Goal 1 - Protect and Preserve Water Quality in the Central and West Coast Basins**:

> *Continued high groundwater quality in the Central and West Coast basins is of the utmost importance to the District. As Southern California enters a period of reduced imported water supplies from the Colorado River and reliance on this valuable resource becomes more and more vital, ensuring the continued high quality of groundwater becomes even more important. The importance of water quality to the District was demonstrated in the early 1990's, when the District instituted the Clean Water Fund to raise money for projects to protect and enhance the groundwater quality of the basins. A major component of ensuring high water quality in the basins is the development of cooperative working relationships with basin stakeholders.*
>
> *The need for a unified voice on water quality issues is important to ensure that appropriate groundwater quality regulations are promulgated by agencies charged with regulating water quality in the Central and West Coast basins. Additionally, it is important that the District work cooperatively with regulatory agencies and assist them wherever possible. As new treatment technologies become available and groundwater testing becomes more sophisticated, it is imperative that the District continue with projects and programs instituted in the 1990's.*

The data collected and the reports developed as part of the installation of the Project will provide valuable information on the water quality of the groundwater as a result of recycled water injection. This water injected into the basin is not only for groundwater replenishment but first and foremost to protect the groundwater aquifer from seawater intrusion, thus meeting **Goal 1, Objective 2 - Mitigate Seawater Intrusion:**

> *The continued monitoring of the Central and West Coast basins is integral to the District's ability to ensure the health of the basins. Information obtained through basin monitoring supports the development and implementation of new projects and also provides the data required to continually reevaluate ongoing projects.*

Project Facilities

The LACDPW operates the Barrier which prevents seawater from contaminating the groundwater by injecting freshwater and recycled water supplies to form a protective pressure ridge. A map of the Barrier with the injection wells is shown in Figure 4.1 below.

The Barrier, which is the largest of the three barriers that the LACDPW owns and operates and the subject of the proposed project, is aligned in a north-south direction and is split into two main segments (i.e., El Segundo Leg [northerly] and Redondo Leg [southerly]). It includes 153 injection wells operating continuously at flow rates ranging from 0.05 to 1.5 cubic feet per second (cfs). The total flow rate for the entire Barrier ranges from 18 to 30 cfs.

Information collected for the Project will be from the existing Barrier system in the Project study area.

Area Covered

The areas covered by the proposed Project are shown in Figures 4.1, 4.2 and 4.3 below.

West Basin Existing and Proposed Monitoring Well Locations

CULVER CITY
LOS ANGELES
COUNTY
INGLEWOOD
EL SEGUNDO
HAWTHORNE
GARDENA
MANHATTAN BEACH
LAWNDALE
HERMOSA BEACH
REDONDO BEACH
TORRANCE
PACIFIC OCEAN

WB-1
WB-2
WB-3

INSET:

WB-1 (Existing)
WB-2, WB-3 (Proposed)
West Coast Basin Barrier Injection Wells
WBMWD Service Area

1.25 0.625 0 1.25 Miles

N

Figure 4.1

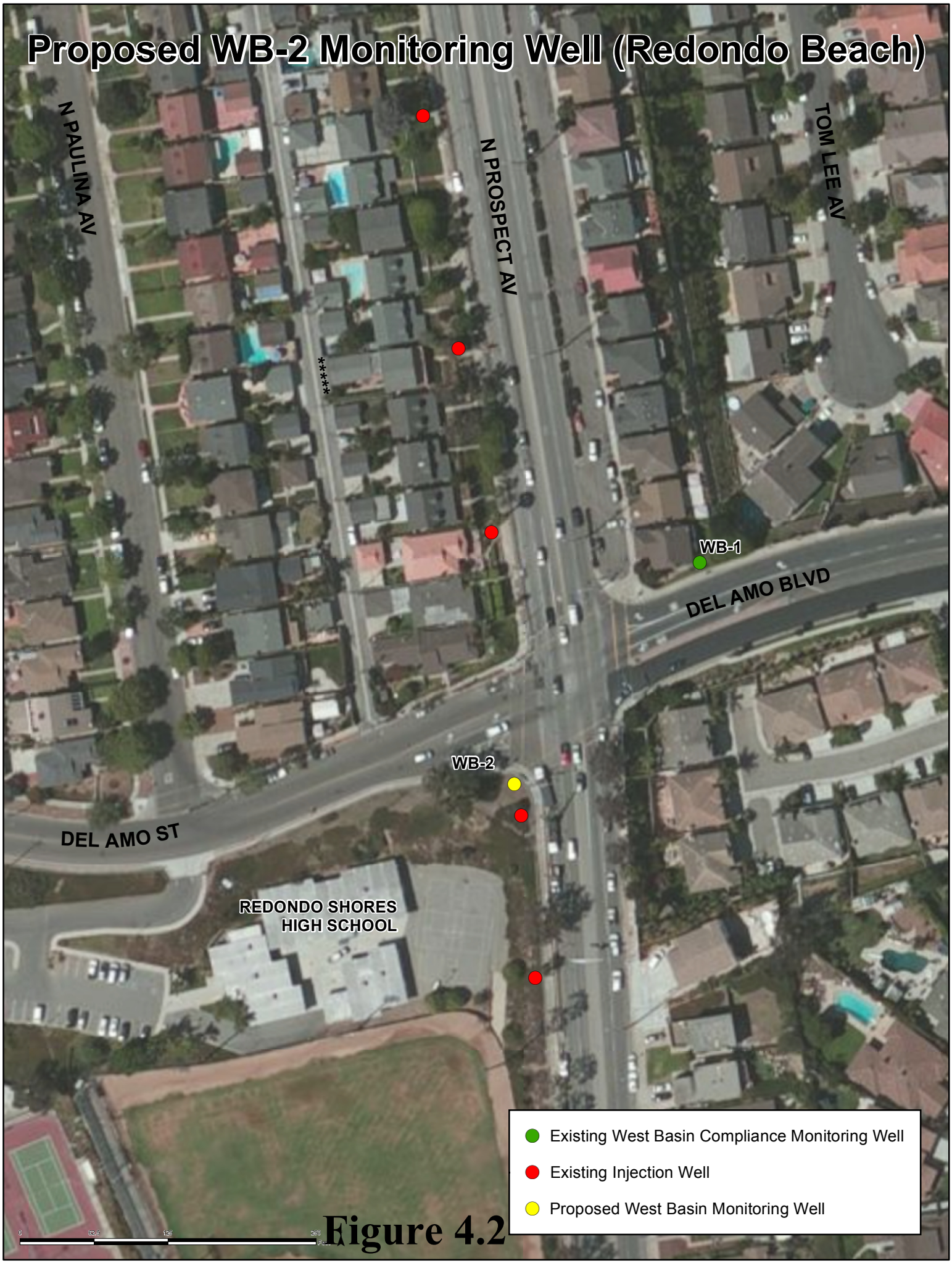
Proposed WB-2 Monitoring Well (Redondo Beach)
N PAULINA AV
N PROSPECT AV
TOM LEE AV
WB-1
DEL AMO BLVD
WB-2
DEL AMO ST
REDONDO SHORES
HIGH SCHOOL
Existing West Basin Compliance Monitoring Well
Existing Injection Well
Proposed West Basin Monitoring Well

Figure 4.2

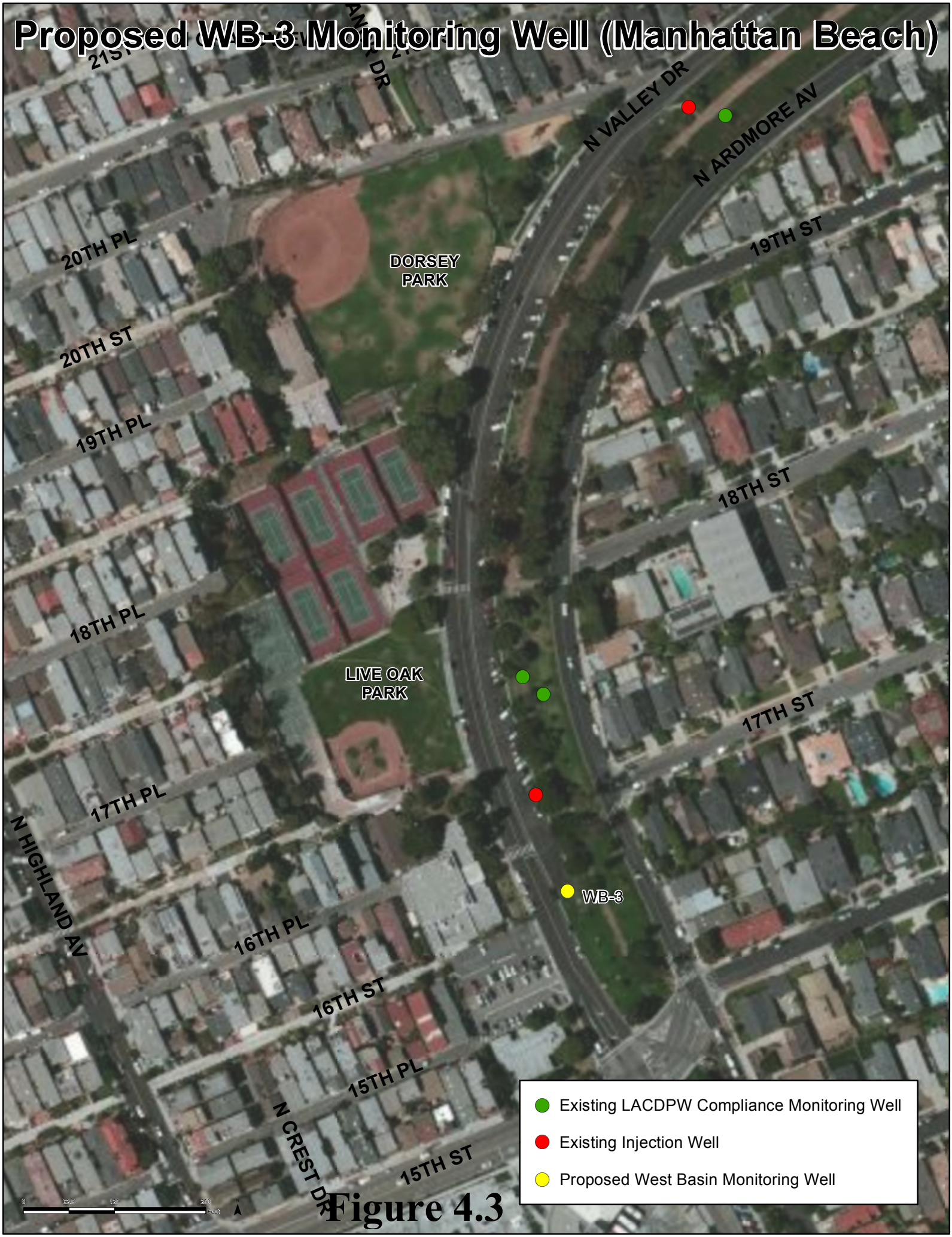
Proposed WB-3 Monitoring Well (Manhattan Beach)
N VALLEY DR
N ARDMORE AV
19TH ST
18TH ST
17TH ST
16TH ST
15TH ST
20TH PL
20TH ST
19TH PL
18TH PL
17TH PL
16TH PL
15TH PL
N HIGHLAND AV
N CREST DR
DORSEY PARK
LIVE OAK PARK
WB-3
Existing LACDPW Compliance Monitoring Well
Existing Injection Well
Proposed West Basin Monitoring Well

Figure 4.3

Quality and Usefulness of Project Information

Describe the quality and usefulness of the information that will be obtained using technically feasible methods. Include a discussion of data, technical methods, and analyses to be used. The level of detail should be sufficient to determine the technical feasibility of the proposed project.

The two proposed monitoring wells will provide West Basin with the capability to conduct its own research specifically focused on early detection to better understand recycled water interaction with the freshwater groundwater supplies. The data that will be collected will be done at West Basin's desired level of effort and be included in the groundwater model in order to track and monitor the flow and transport of the recycled water that is injected into the Barrier. Having only one well in the southern leg does not provide enough data points to track this flow. By installing one in the north leg of the Barrier (Manhattan Beach) and a second in the south leg (Redondo Beach near the existing WB-1 well) will enable 3 data points of information to be collected.

Collaboration and Outreach

Describe how the applicant collaborates with other local public agencies with regard to the management of the affected groundwater basin. Discuss and provide evidence that a process is or will be in place that informs groundwater users, stakeholders, and the general public about the project to be funded with the proposed grant and disseminates relevant reports and data. A stakeholder is an individual, group, coalition, agency or others who are involved in, affected by, or have an interest in the implementation of a specific program or project. Explain and document how federal and other State agencies will be contacted. Examples include workshops, regularly scheduled groundwater association meetings, public notices, informational mailings, and websites.

West Basin collaborates on groundwater protection by providing recycled and fresh water for the Barrier. Some of its crucial partners include LACDPW, WRD, California Water Service Company (Cal Water), City of Los Angeles Bureau of Sanitation (LA City), the Los Angeles Department of Water and Power (LADWP) as well as the California Department of Public Health (DPH) and Los Angeles Regional Water Quality Control Board (LA RWQCB). West Basin meets regularly with these partners that support efforts to advance independent studies of the groundwater basin. West Basin also regularly collaborates with other stakeholders such as the West Basin Water Association, Heal the Bay, and other local environmental groups that are a part of our community.

Table 4.2 shows the list of stakeholders and their role in the project.

Stakeholder	Role
1. Water Replenishment District of Southern California	Groundwater Replenishment Agency
2. City of Redondo Beach	Well location #1
3. City of Manhattan Beach	Well location #2
4. LACDPW	Owner and operator of Seawater Barrier
5. LA RWQCB	Regulatory Agency
6. DPH	Regulatory Agency

West Basin works with the LA RWQCB for injection of recycled water into the West Coast Basin Barrier as an alternative supply to imported water. In the early 1990s after West Basin constructed its Edward C.

Little Water Recycling Facility, reverse osmosis recycled water was produced by West Basin, purchased by WRD and blended with imported water supplies for injection into the Barrier. Initially, West Basin was permitted to inject a blend of 25% recycled water and 75% imported water into the Barrier. In 2006, West Basin received a permit from the LA RWQCB to inject 100 percent recycled water into the Barrier. This injected water has the dual benefit of not only preventing seawater intrusion into the aquifers of the West Coast Groundwater Basin, but also providing replenishment to replace the water that is extracted by drinking water wells.

West Basin has enjoyed a very professional and friendly work relationship with regulators such as DPH and LA RWQCB. These agencies and West Basin hold regular meetings throughout the year to discuss not only compliance issues, but also ideas for studies or independent information gathering which will help not only the local stakeholders and community, but the California water industry in general. Regulators also receive quarterly, annual, and special groundwater monitoring or modeling reports. With growing concerns over emerging contaminants outside the regulatory authority, having West Basin own and manage its own monitoring wells will greatly benefit the community at large.

Outreach

West Basin has a nationally recognized public education department that works to reach every resident within West Basin through mailers, newsletters, social networking, user friendly websites and public meetings. West Basin staff speaks to hundreds of community service groups through public events and offering tours of the water recycling facility to the public one Saturday a month. Additionally, over 5,000 children aged 11-13 visits and tour the water recycling facility during each school year. Water quality information and groundwater health are discussed with each and every group.

Communications and Outreach Tasks

Task 1.0 Project Management

Strong project management is critical to the success of this Project because of the sensitivity of the Project being constructed in a parkway area in a residential neighborhood in the City of Redondo Beach and a street median near a commercial/retail area in the City of Manhattan Beach.

Task 2.0 Conduct reconnaissance of Project area

The key objective of the reconnaissance task is to determine key stakeholders, institutions, governing jurisdictions and others who may be affected by construction and identify anticipated issues, needs, options, opportunities and concerns about the Project and outline the nature of the impact on these stakeholders. Potential issues and concerns will be analyzed and we will assess potential solutions and the best communication strategies with the various audiences. This information will also help determine the best tactics to employ for the construction awareness program.

Task 3.0 Develop Construction Awareness Plan

After the reconnaissance of the area is complete, we will develop a strategic construction awareness plan detailing how we would communicate with those potentially affected by the construction of this project. Tactics in such a plan may include:

- Direct mail: A letter will be sent to the residents, businesses and property owners within two blocks of the construction to introduce them to West Basin and the Project, provide the basic information about the project and how we will communicate with them about the construction of the monitoring wells. Also included with the letter will be a schedule of any public meetings or open houses about the Project, a Project fact sheet with a map, a business card with the community construction information hotline number, website and email address for information, updates and to register concerns, complaints and compliments about the Project.

- Canvas program: A critical part of the Construction Awareness Program is the canvass program. We will provide a door-to-door canvassing of all affected businesses and residences within the two block radius of both monitoring wells. This will speak to affected individuals about the Project, address any concerns they may have, share with them how we will keep them updated about major construction activities including traffic detours, street closures and other activities, provide them with the community construction hotline number, Project fact sheet and notice for any public meetings or open houses we may coordinate.
- Community construction information hotline: West Basin may establish a community construction information hotline for the public to call for updates, traffic impacts as well as to file complaints, concerns and appreciation. We will keep a log of the calls and follow up on issues within 24 hours.

Task 4.0 Develop collateral materials

We would develop collateral information for the project that may include the following below. All collateral materials will be in English and Spanish.

- Project fact sheet which will include project background, description, estimated cost of project, benefits to the community, and contact information.
- Construction notices
- Traffic advisories
- Website information

Some of the collateral material will be available on the West Basin website for the public to access information about this project. The information or a link to the information will also be provided on the City of Manhattan Beach and Redondo Beach's websites.

Explain how ongoing use of the products derived from the proposed project will be funded after grant funds are expended. Additional State grant funds to continue with the funded project should not be a consideration. Provide examples of how often and under what funding mechanism monitoring wells will continue to be monitored, models maintained and used in the future, automated monitoring equipment maintained, or data management systems be updated and maintained. Include a discussion of measures that will be used to evaluate data and mechanisms to adapt the data collection process as new information is obtained. For proposals to develop a GWMP, explain how the GWMP will be implemented and how it will be funded.

West Basin's Edward C. Little Water Recycling Facility, located in El Segundo, has been in continuous operation since 1995 and has conserved over 120 billion gallons of imported water by serving reliable supplies of recycled water for a wide variety of non-potable uses.

West Basin is committed to monitoring and maintaining the high quality of recycled water produced for injection at the Barrier and the surrounding groundwater from migrating contamination sources. In addition, groundwater quality within the aquifer is monitored through more than a dozen monitoring wells inland of the Barrier. These wells monitor the quality of the groundwater down-gradient of the Barrier, are essential in providing critical water quality data for the surrounding groundwater. Annual water quality data reports and groundwater modeling are submitted to both the DPH and the LA RWQCB to ensure compliance and security.

West Basin is committed to increase its Barrier monitoring annual budget to sample and monitor the two new water quality monitoring wells so that recycled water can be monitored underground and ensure protection of the public water supply as well as the environment. There are many efforts and

advancements in groundwater research that can be accomplished by installing two more properly placed and screened monitoring wells along the Barrier system. The lab analysis is currently captured in West Basin's annual Operations budget. Well maintenance is part of the Engineering and Operations annual budget. This will be increased in the future to account for the proposed Project.

The information from the two new monitoring wells will be incorporated into the budgets described above and anticipated to increase by 5% from the current budgeted amounts. This will include the maintenance of the new data that is collected, maintenance of the wells themselves and for the laboratory evaluation of the data that is then incorporated into the model.

The groundwater model inputs data to track elements including levels of chlorides in the flow and transport of groundwater and seawater that has intruded into the basin and is currently updated and maintained by West Basin Water Quality staff. The data from the monitoring wells is inputted into the model as soon it is received from the laboratory. This data is also contained in a data management system that is constantly updated and maintained. Annually, West Basin budgets $80,000 in its Operations budget for updating the groundwater model to meet the LA RWQCB requirements.